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DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

YELLOWSTONE NATIONAL PARK

FILE No.

MONTHLY REPORT

FOR

APRIL, 1921.

V

MONTHLY REPORT

1921.

April.

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DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

YELLOWSTONE NATIONAL PARK

YELLOWSTONE PARK, WYO.

OF THE SUPERINTENDENT

May 10, 1921.

Dear Sir:

The following is my report on conditions in Yellowstone National Park, and on the operation of the park, for the month of April, 1921.

I returned to the park on April 24th, from an absence on detached service in Washington and the Pacific Coast parks since November 6, 1920.

GENERAL CONDITIONS:

Weather: The local observer of the United States Weather Bureau is stationed at Park Headquarters, and the following notes from his records are based upon his observations of conditions at Mammoth Hot Springs. The low temperature and high precipitation all tend towards a backward season and nearly offset the opposite conditions of March, which gave hope of an early spring.

Temperature: Monthly mean, 34.6° , is 2.4° below normal. The mild weather at the close of March continued for the first three days in April, and the highest temperature, 59° , recorded during the month occurred on the 3d. The week following this period was moderately cold, with the lowest for the month, 5° , occurring on the 9th. The second decade was slightly above normal, while the last ten days were considerably below normal.

Precipitation: Total, 1.70 inches, is 0.32 inch above normal. It is interesting to note that each month since November, 1920, shows an excess in temperature and a deficiency in precipitation, while April presents a reverse condition, namely, a deficiency in temperature and an excess in precipitation.

Snowfall: Total, 11.1 inches, is somewhat above normal. There were seven days with a measurable amount of snowfall, and the greatest depth on the ground was 5.0 inches on the 23d.

Wind: The wind movement was about normal, with a very moderate maximum velocity of 36 miles on the 29th.

Sunshine: Percentage of possible, 50, or about 20% less than normal.

The Monthly Meteorological Report for April is enclosed.

The following comparisons of the depths of snow at various park stations on April 30th, with the depths one year previously, are of interest as indicating an easy opening of the park roads as compared with last year. The drift in Golden Gate Canyon was shoveled out on May 1st so a team can pass, and at this writing the roads on the west side of the park, from the entrance to Upper Basin and towards Norris to Gibbon Meadows, are practically free from snow.

<u>Station</u>	<u>Depths of Snow, in inches.</u>	
	<u>1 9 2 0</u> Apr. 30	<u>1 9 2 1</u> Apr. 30
Mammoth Hot Springs,	--	0
Norris,	48	12
Riverside,	26	0
Upper Basin,	36	0
Gallatin,	30	0
Snake River,	-	34
Thumb,	-	28
Lake,	47	18
East Entrance,	-	0
Canyon,	48	22
Tower Falls,	10	0
Buffalo Ranch,	18	0
Soda Butte,	20	0

Travel.

The only roads in use for motor travel during April was from the North entrance to Mammoth Hot Springs, and for a distance of about 12 miles on the Tower Falls road. Beyond this, teams were used to the Tower Falls Station, Soda Butte Station, and in to Cooke, by the mail contractor.

The Chief Ranger's Travel Reports, for April, 1921, and April, 1920, for comparison, are enclosed.

Labor and Supply Market.

No trouble has been experienced in getting plenty

of men for such work as we had in hand, at a wage approximately 50¢ per day lower than last year. Many applications for work have been received, and the indications are that we shall have no difficulty in securing plenty of good men throughout the season.

Prices on supplies are also becoming lower.

II. PERSONNEL:

Employees.

On April 1st there were 73 employees on duty under this office, increased by April 30th to 109.

The following list shows the number of employees of various classes serving under appointment during the month, with a general statement of the kind of work in which they were engaged:

<u>No.</u>	<u>Class</u>	<u>Kind of work performed.</u>
2	Asst. Engineers	Office engineering, filing and cataloguing records, and making preparations for the season's work.
4	Clerks	1 Disbursing Agent and Purchasing Clerk; 1 on cost account work and property; 1 stenographer-typist on orders, proposals, and vouchers; 1 stenographer-typist on stenographic work, files, and cutting and pasting clippings.
2	Electricians	Read meters, did necessary line work, and operated power plant regular shifts, including Sundays.
3	Foreman	1 in charge of stables at headquarters, and repairing tents and harness; 1 repairing sprinkler systems; 1 since April 1st and 1 since April 8th on road maintenance.
1	Telegraph Operator	Sent and received all Government Western Union messages; operated one shift on telephone switchboard.

<u>No.</u>	<u>Class</u>	<u>Kind of work performed.</u>
1	Telephone Switchboard Operator	Operated telephone switchboard, daily shifts, including Sundays.
1	Master Mechanic	In charge of shops, and of repairs to heavy road machinery.
1	Blacksmith	General blacksmith work, including shoeing horses in shop, overhauling and repairing tools and equipment.
1	Painter	Renovated quarters at headquarters, also painted signs and equipment, and prepared stencils and samples of paint for other national parks.
1	Lineman	In charge of telephone and telegraph system. Did emergency work and installed instruments.
7	Laborers	Teaming, freighting, work in warehouse, and miscellaneous work at headquarters. (3 resigned effective at close of April 30th).
1	Handyman	Worked in storehouse issuing and receiving supplies, and sorting property.
1	Steward and Master of Transportation	In charge of all transportation, and of storehouses. (Returned to duty April 1).
1	Buffalo Keeper	In charge of tame buffalo herd.
1	Asst. Buffalo Keeper	Assisting buffalo keeper.
1	Park Naturalist	Scientific research work and information service.
1	Plumber	In charge of general plumbing, and repairs to same at headquarters.
2	Automobile Mechanics	Repairing motor trucks and touring cars.
1	Watchman	Made hourly patrols during night at Headquarters, took care of office, and kept furnace going during the night.

<u>No.</u>	<u>Class</u>	<u>Kind of work performed.</u>
2	Carpenters	Repaired buildings at Headquarters, and overhauled equipment in shop.
1	Chief Ranger	In charge of ranger force.
1	1st Asst. Chief Ranger	In charge of northern district.
1	Asst. Chief Ranger	In charge of southern district.
22	Park Rangers	In charge of ranger stations, doing patrol work, and constructing cabins. 1 on special duty as Acting Assistant Chief.
1	Temporary Park Ranger.	Assisting in Chief Ranger's office.
1	Fireman	In charge of furnaces at headquarters.

In addition to the regular employees listed above under appointment, the following were employed temporarily by the day:

	<u>On Apr. 1st</u>	<u>- On Apr. 30th</u>
Laborers,	6	14
Special Laborers,	0	2
2 Horse Teamsters,	1	10
4 Horse Teamsters,	0	2
Mechanics,	1	1
Powdermen,	0	2
Foreman,	1	1
Rockmen,	0	1
Gradersmen,	0	1
Cooks,	1	2
Waiters,	0	1
Truck Drivers,	0	2
Bridgemen,	0	1
Rough Carpenters,	0	3
Rollermen,	0	1
	<u>10</u>	<u>44</u>

Leaves of Absence.

During April, annual leaves of absence were granted as follows:

R.T. Frazier,	Park Ranger,	19 days	- Apr.1-22
E.T. Scoyen, Acting	Asst.Ch.Pk.Ranger,	15 $\frac{1}{2}$ "	- Apr.4-21-noon.
Wendell M. Bishop,	Park Ranger,	13 "	- Apr.2-16
Helen E. McNutt,	Stenog.-Typist,	7 "	- Apr.6-13
R.R. Wisdom,	Park Ranger,	16 "	- Apr.1-19
Carrie O.Haunmesser,	Stenog.-Typist,	2 $\frac{1}{2}$ "	- Apr.1(noon)-4
B.C. Lacombe,	Buffalo Keeper,	3 "	- Apr.7-9
Harry Trischman,	1st Asst.Chief		
	Park Ranger,	3 "	- Apr.7-9
G.T. Dustman,	Clerk,	2 "	- Apr.6-7
Albert Collins,	Electrician,	24 "	- Apr.4-30
Hans Larsen,	Park Ranger,	3 "	- Apr.7-9
Lee Webb,	Carpenter,	3 "	- Apr.7-9
Roy Gray,	Laborer,	2 "	- Apr.5(noon)-7(noon).
C.A. Lindsley,	Acting Supt.,	1 "	- Apr.2
H. McFarland,	Foreman,	15 "	- Apr.11-27
Daniel W. Tripp,	Laborer, (Sick Leave)	9 "	- Apr. 1-9
Luther Custer,	Park Ranger,	3 "	- Apr.14-16
Carrie O.Haunmesser,	Stenog.-Typist,	1 "	- Apr.16
John N. McDonald,	Laborer,	1 "	- Apr.16
Geo. T. Dustman,	Clerk,	$\frac{1}{2}$ "	- Apr.16(noon)-16
Carrie O.Haunmesser,	Stenog.-Typist,	5 "	- Apr.19-23
Alfred C.D. Henman,	Laborer,	6 "	- Apr.25-30
James Dupuis,	Park Ranger,	2 $\frac{1}{2}$ "	- Apr.22(noon)-25
Albert T. Bicknell,	" "	1 $\frac{1}{2}$ "	- Apr.22(noon)-23
Thomas Farrell,	Fireman,	24 "	- Apr.4-30
C.A. Lindsley,	Asst.Supt.,	$\frac{1}{2}$ "	- Apr.16(noon)-16
L.L. Hill,	Asst.Engineer,	2 "	- Apr.15-16
J. Douglas,	Asst.Chief Pk.Ranger,	$\frac{1}{2}$ "	- Apr.30(noon)
C.A. Lindsley,	Asst. Supt.,	$\frac{1}{2}$ "	- Apr. 30(noon)
E.S. Bowman,	Park Ranger,	1 "	- Apr.30
John N. McDonald,	Laborer,	$\frac{1}{2}$ "	- Apr.30
Peter Lawson,	Park Ranger,	$\frac{1}{2}$ "	- Apr.30(Noon)
Helen E. McNutt,	Stenog.-Typist,	$\frac{1}{2}$ "	- Apr.30(noon)

Appointments.

Apr. 4: William L. Bicket, Carpenter, \$1320 p.a.
 Apr. 1: Court B. Dewing,)
 Apr. 1: Peter Lawson,) Covering change of designation
 Apr. 1: Thad C. Pound,) from "First-Class Park Rangers"
 Apr. 1: Roby Roy Wisdom,) to "Park Rangers".
 Apr. 1: Raymond G. Little,)
 Apr. 1: Henry Anderson,)
 Apr. 1: Lee Webb, Carpenter, \$1320 p.a., Permanent appointment.

Promotions.

Apr. 1: Clifford Anderson, Park Ranger, \$1200 per annum.
 Apr. 8: Luther Custer, Park Ranger, \$1200 per annum.
 Apr. 1: M.P. Skinner, Park Naturalist, \$1500 per annum.

Foreman Deane T. White was taken up on April 8th, 1921, from furlough since September 16, 1920.

Separations.

Fred L. Bennell, Laborer, \$1080 p.a.)	
Daniel W. Tripp, Laborer, \$1080 p.a.)	Resigned. Effective at
Clarence Scoyen, Laborer, \$1080 p.a.)	close of April 30, 1921.

III. WORK COMPLETED:

(a) Construction of Physical Improvements.

The only construction work during the month was the building of a new cabin on Hellroaring Creek mentioned in V (a) in report for March as having been begun that month. This work was completed by labor of the park ranger force, as was also the log stable 12 x 26 feet in size, both of which were described in last month's report. The total cost of both of these buildings, outside of the labor of the ranger force, was about \$168.00.

(b) Maintenance and Repair of Physical Improvements.

Reported under work in progress, heading IV.

(c) Miscellaneous Improvement Work.

The park ranger force, after finishing the Hellroaring Cabin, cut new posts and placed the fence around the pasture used at Mammoth for the tame buffalo in excellent repair.

Most of the work done during the month is reported under another heading.

(d) Service to the Public.

This feature was of no importance, as the park was not open to visitors. The enclosed Chief Ranger's Report shows a total of 82 people who visited the park, most of them on business.

Information Service:

114 Yellowstone National Park publications and 81 publications relating to other National Parks were sent out free of charge. 10 "for sale" publications were sold. 65 short letters were sent out in reply to simple inquiries; 15 more letters requiring longer, more technical replies were answered after spending the necessary time in searching

out the information desired. Finding that the number of applications for positions was becoming excessive, we had a form letter prepared and these mimeographed answers were sent to 153 applicants. In addition, 48 more letters applying for positions were answered, mostly by referring the applicants to the Hotel Company, the Camps Company, or the Transportation Company, as seemed most suitable.

IV. WORK IN PROGRESS:

(a) Construction of Physical Improvements.

None in progress except as reported under III.

(b) Maintenance and Repair of Physical Improvements.

Repairs to Sprinkling System:-- One crew, consisting of Foreman Farrell, 3 men, and 1 team, started work April 19th on repairs to the park road sprinkling system. One new tank was installed at the $1\frac{1}{2}$ mile post from Gardiner, which will be supplied with water by ram from the Gardiner River. Two others were repaired and about 600 feet of new flume and 200 feet of ditch built.

On April 1st a crew, consisting of foreman, cook, 1 team, and 3 men, started making repairs to the high steel bridge over the Gardiner River. The nature and necessity of this work was explained in the March report under the heading "Plans or Proposed Work". The job was finished April 9th, and the next day the camp was moved to the old bunk house and stable near Gardiner, owned by the Transportation Company. The crew was then increased to a foreman, cook, 1 waiter, 7 teams, and 17 men, who worked until April 18th removing the slide from the road below the lower steel bridge about $1\frac{1}{2}$ miles from Gardiner. Approximately 1300 cubic yards of earth and rock were removed from the road.

A rock crusher and bankers were set up at the high gravel bank about $\frac{1}{4}$ mile from the Gardiner entrance. The crushing of rock began April 20th and continued until the end of the month. On April 20th the size of the crew was increased by a steam roller engineer, 1 truck driver, 1 gas tractor engineer, and three laborers. Bad weather caused some delay, and the magnets on the caterpillar tractor which furnished power was the cause of several shut downs. By the end of the month 415 cubic yards of rock had been crushed and delivered on the road between the one and two mile posts.

The road surface was made ready with a road grader, then spread to a depth of four inches with the crushed rock. The rock was wet with a road sprinkler and thoroughly rolled with a steam roller until the surface had become hard and compact. A 5 ton Mack truck hauled most of the rock.

This crew also hauled about 50 cubic yards of boulders to a place about $1\frac{1}{2}$ miles from Gardiner, where the river had been eating into the roadway.

White's Crew.
East Forest Road.

In the fall of last year an inspection was made of the road through the East Forest Reserve, which showed the necessity of constructing several rock filled log cribs or wing dams along the Shoshone River where the force of the current during high water has washed out portions of the roadway.

As it was imperative that these cribs be built before high water, a crew was engaged and work started early in April. An auto truck was sent over from headquarters, at Mammoth, to Cody, to be used for hauling supplies between that place and the camp in Forest Reserve, and for hauling logs and materials on the job.

The first camp was established near Hanging Rock, and on April 13th the crew, consisting of foreman, cook, truck driver, 2 teams, and 8 men, began work on a log crib about $\frac{1}{2}$ mile above Hanging Rock on the right bank of the Shoshone River. The size of the crib is 68' long, 7' high, and $7\frac{1}{2}$ ' wide, inside measurements. The job was finished April 23rd.

On April 24th the camp was moved to a site near Gunbarrel Creek and work began getting out logs for a crib to be built on the left bank of the Middle Fork of the Shoshone River at a point about $\frac{1}{2}$ mile east of the park line. This crib will be built along side of an existing one, which is in poor condition.

In addition to the crib work, this crew graveled a short stretch of road near the Palisades, built one pole culvert, and removed some of the snow from the road between Pahaska and the park line, with a grader, to facilitate the hauling of rock and logs.

(c) Miscellaneous Improvement Work.

The Park Ranger force maintained necessary spring patrols, but during the spring months there are certain parts of the park where the snow conditions prohibit travel of any kind and the same conditions render patrolling unnecessary. For this reason, several of the rangers are able to devote their time to building cabins, repairing fences, and similar work which they do not have time to do at other seasons. Their work in this respect has been mentioned in a previous heading. Several rangers, as with other employees, took their annual leaves of absence during the month.

The rangers at Gallatin Station, with the assistance of a hired team and driver, wrecked the frame barn situated about a mile from the present station, and hauled it to the present site, where it will be rebuilt as a barn.

The buffalo keepers took care of the herd of tame buffalo at the Lamar River Ranch and vicinity, and spent six days with a hired team discing the meadows to increase the hay crop. An irrigator was employed, beginning April 15th, to repair the ditches and headgates and begin watering the meadows. Assistant Keeper Hutchings, with the assistance of one ranger, completed the log storehouse at the Slough Creek hay ranch, and seeded about 375 acres of wild hay land to red top. This seeding is done on top of natural meadows, without cultivation of any kind, and if successful, will serve to increase the yield of hay materially.

The office force was busy from 8:30 A.M. to 5:30 P.M., daily, with routine work, which is increasing as preparations go on for the working and tourist season.

Park Naturalist Skinner assisted with the information service, which is referred to under a preceding paragraph. The requirements of the new museum were studied and plans for cases prepared by him. Only six specimens were collected, but a large share of his time was spent on field trips, resulting in the collection of a large amount of valuable data and the location of specimens to be secured later. Notes were written up and two manuscripts were written. Photograph illustrations for manuscripts were prepared. The special studies of forestry and plants were continued. A small amount of work was done indexing books and pamphlets in the library. Other studies pursued by him resulted in his notes on Seasonal Changes and Natural Phenomena, as embodied in this report.

The employees at headquarters corral and the small force of men employed as laborers at Headquarters did the miscellaneous work of caring for the horses in use here, hauling garbage, and other sanitation work, and assisted whenever practicable in the shops and store-houses. They also completed the work of cleaning out the concrete reservoir at headquarters, under the direction of the plumber.

The plumber assisted with the cleaning out of the reservoir, had charge of and made repairs to the water and sewer systems, which included the installing of cut-offs at employees' quarters at two places so the water could be cut off when repairs have to be made without shutting off the mains, and replacing much of the water and waste pipe at one set of employees' quarters where it was practically worn out, leaking, and insanitary.

The painter devoted most of the month to renovating living quarters, but in addition painted one touring car and one truck, and made four sets of stencils, and sample boards showing the standard green color adopted for National Park Service equipment, which were sent to the superintendents of other parks for their information and guidance.

The shop force continued the general overhauling of motor vehicles, gave the rock crusher a good overhauling before putting into use on the Gardiner road, and the blacksmith and helper repaired tools and equipment, and shod horses. The carpenters accomplished considerable in the way of repairs to quarters, and also made good progress on the work of remodeling an old store house for a bunk house for laborers in summer.

The electricians and lineman kept the lines in repair, made new installations, or replacements, where needed, and ran the hydro-electric power plant about 20 hours daily, except on Sundays, when it was operated but 12 hours. The plant generated a total of 12,810 K.W. hours of current during April, and of this 1,131 kilowatt hours were sold to park utilities for light and power, 621 kilowatt hours for lighting streets, and the balance of 11,058 kilowatt hours were used for lighting Government buildings and furnishing power to our shops. The peak load of 44 kilowatts occurred at 9:00 o'clock, P.M., on April 25th. The total production was 4090 kilowatt hours greater than in April, 1920.

A mechanic who understands plastering, concrete, etc., was employed, who plastered the new work in the room

intended for an information office and museum, repaired a small piece of tar and gravel roof on the chapel, and made extensive repairs to the concrete walks in the grounds at Mammoth.

Improvements by Park Utilities.

The Yellowstone Park Camps Company had a few men employed at Mammoth - mechanics repairing and overhauling equipment, carpenters making tables and benches for use at camps, and renovating Mammoth Camp. A cook was employed and general mess started at Mammoth on April 12th.

The Yellowstone Park Hotel Company, in addition to the regular winter keepers at Mammoth, Upper Basin, Lake, and Canyon, employed a force of about 10 to 12 men at Mammoth, rebuilding the interior of the old Cottage Hotel for use as a dormitory for male employees. All the plaster was removed, floors braced up, and it is to be refinished in a substantial manner. This work is still in progress.

The Yellowstone Park Transportation Company made excellent progress in its work of overhauling the motor cars used for passenger service in the park, and its shop ran to full capacity throughout the month. The painting of motor cars was also continued, and the grounds around the company's buildings were well policed.

V. WORK BEGUN:

No new work was begun, except as noted under other headings.

VI. PLANS OR PROPOSED WORK:

In addition to the continuance of the work under progress as shown by that heading, the following is contemplated:

Lamar River Bridge: On April 20th, Assistant Engineer L.L. Hill, with two men, started for the Lamar River bridge to make an inspection of that structure. Some light maintenance work was done on the way, diverting streams of snow water from the road bed to the side ditches.

The present bridge over the Lamar River was built in 1918 by Cooke City mining interests to replace a bridge which was destroyed in the spring of that year by high water. The bridge consists of three spans of 60 feet

each. The two piers and abutments are rock filled log cribs. The trusses are logs and the flooring poles. The logs in the trusses are far too small for the load they carry. This fact, in connection with poor workmanship, resulted in a bridge that was safe only for very light loads.

In the spring of 1920, one of the trusses of the middle span broke and the whole bridge became so unsafe that it was necessary to place false bents under every span. It is now feared that should these false bents be removed, the bridge will fall of its own weight. On the other hand, if the bents are not removed, logs, snags, and other debris carried by high water will lodge against the bents until the pressure becomes so great they will give way and the whole structure carried away.

As the only alternative seemed to be the replacement of the present trusses with new ones, a truss was designed in the office which will be capable of much heavier loading than the old ones. It is proposed to use 8' x 12" timbers, which are in stock, for the lower chords, and cut green timber for the rest of the truss. On April 29th, three carpenters began the work of cutting and fitting the timbers. Early in May a crew will be sent out to cut the necessary green timber.

As most of the iron needed is in stock, the rods, bolts, plates, etc., will be made in the shops.

The crew now engaged crushing rock and repairing the road between Mammoth and Gardiner will remain on that work until about May 15th, when they will move to a point near Mammoth. They will repair the roads in that vicinity, and on May 20th move to Swan Lake Flats, where good gravel can be obtained and hauled where needed on the Mammoth Golden Gate road. Graveling this road will be continued until the end of the month.

The crew now engaged building a log crib near the East Entrance will complete that work, then move to Pahaska and make repairs on a log crib near that place.

About May 15th, a few men will be sent up to Sylvan Pass to blast out the snow in the deep drifts. Several hundred pounds of T.N.T. was cached at a cor-

venient place in the pass last fall for the purpose. This is done to facilitate melting of the snow.

The remaining part of the month the crew will be engaged repairing the road in the East Forest Reserve.

The work of making repairs to the sprinkling system will be continued through the month. It is proposed to increase the crew to about ten men on May 10th. A number of new tanks will be installed and repairs made to the old ones. Hundreds of feet of flume will be replaced with new and a great deal of new pipe used.

Early in May a crew of seven or eight men will be organized and sent out to rebuild the Lamar River bridge. This work will require about a month and is estimated to cost in the neighborhood of \$1000.

Plans for the work of the ranger force contemplate continuance of necessary regular patrols in such portions of the park as practicable; rebuilding of the barn at Gallatin Station, which was pulled down in April and moved from the site of the old station to the new; building of the walls of a log cabin at Trout Lake near Soda Butte Station for use of men engaged in gathering fish eggs at that point; provide a supply of wood for use of campers at the public automobile camp at Park Headquarters; continue the readings of the water gage at Canyon; possibly begin the opening of the roads, and keep up regular work at Headquarters, and the hunting of predatory animals.

At the Buffalo Ranch, the usual cleaning up incident to spring, irrigating meadows, and caring for the buffalo herd. At the Slough Creek hay ranch, irrigating of the meadows, clearing out of brush in the meadows, and general policing.

The work of the shop force, electricians, mechanics, etc., at headquarters, will go on in about the same order as during April. Their work will include finishing the new bunk house, including plumbing, putting new floor, and renewing the plumbing in the mess house, and finishing the carpenter work, plumbing, and painting the floors and walls of the large room which has been prepared in the stone bachelor quarters for a museum and information office.

A man will be employed during May to irrigate

the 45-acre meadow at the northern gateway. The lawns at headquarters will be irrigated if necessary and will be raked over where necessary and put in shape for the summer by regular employees.

The Hotel Company will continue the work on the Cottage Hotel now in progress.

The Transportation Company will also continue its present program of overhauling and painting its large fleet of motor cars.

Mr. C.A. Hamilton has made one trip over the snow to the Upper Basin, and plans to get a small crew to the Lake Outlet to go on with his building plan there just as soon as he can get a team through. He has purchased one Gardner Junior Monarch Air Compressor for the Basin Filling Station, and the same for Lake, at a cost of \$300.00 each and freight. They will also be installed at Canyon and Mammoth. These compressors are electrically operated and are the same size as those used in practically all filling stations throughout the country. The service will be gratis, and they are to be installed for the convenience of the private motorist.

The Yellowstone Park Camps Company will continue the work in progress at Mammoth, and is planning to get a crew to Tower Falls to continue the work on Camp Roosevelt and the Boys' Camp in connection, at an early date.

Several of the items mentioned above were mentioned in the March report, but were not begun in April as contemplated.

VII. POLICIES:

No new policies were adopted during the month.

VIII. COST OF OPERATION:

Cost of work report for April covering this heading is enclosed herewith.

IX. OTHER MATTERS OF INTEREST:

Wild Animals.

While not so warm as March, from a comparative standpoint, the weather conditions for April were not specially detrimental to the wild animals. Grass got a good start during the latter part of March, and before the

end of the month, the animals were working back towards the mountains, and this condition has continued during April. All of our wild animals were generally in good condition, and the losses have been very small.

Buffalo, tame herd: No hay was fed during the month. The herd was divided, but the cows were on Lamar River below the ranch, near enough so the keepers kept in constant touch with them, though not so much attention was given the bulls, which were further away and more scattered. Seven calves were born during the month of April, and the total number of calves now in the herd is 25. More than 200 tons of hay were left from last year's crop.

Buffalo, wild herd: Rangers from Soda Butte Station patrolled on Cache Creek and reported seeing 54 wild buffalo there, all in good condition.

Bears: Bears were seen at nearly every station in the park. They broke into our empty buildings at Madison Junction and stole some rations stored there for winter patrols.

Antelope: Antelope were moving up at the end of March, and during April were seen as far up as Hellroaring Creek and the Buffalo Ranch on Lamar River. Four dead ones were reported in the Gardiner District during April, apparently having died natural deaths.

Deer: The deer were scattered, as usual when the grass begins to appear. They appear to be in excellent condition. Three dead ones were reported in the vicinity of Gardiner during April.

Elk: While a few hundred elk remain in the lower district around Mammoth, scattered bands are found throughout the northern part of the park from Electric Peak to Soda Butte. The largest numbers were reported from Specimen Ridge. But two dead ones were reported during the month.

Mountain Sheep: The small band that wintered on Mt. Evans is still seen occasionally in Gardiner Canyon and on the slopes of Mt. Evans, and a band of 18 was seen near Tower Falls, and another of 26 on Specimen Ridge.

Moose: No reports of moose were received during the month.

Carnivorous Animals: Park Rangers Henry Anderson and Court Dewing continued their efforts of trying to exterminate

coyotes, wolves, and mountain lions. During the month they succeeded in killing one male wolf, an extremely large one, and located and dug out one den of wolves and killed 11 pups. The mother escaped.

Grazing: There is plenty of new grass on the ranges frequented by the wild animals along the northern boundary of the park.

Birds.

This subject is reported under another heading - "Seasonal Changes".

Fishes.

Fishing was fairly good in Gardiner River. Several parties also made good catches in Yellowstone River a few miles above the mouth of the Gardiner, under special permits issued to them to go in for that purpose.

Seasonal Changes.

The notes on Seasonal Changes were furnished by Park Naturalist Skinner, as follows:

Botanical:

Grass made good growth throughout the month. Flowers started to bloom: Buttercups on the 4th; Phlox at 5600 feet elevation on the 20th, at Mammoth on the 28th; Dandelion near Mammoth on the 25th; and Yellow Violets on the 29th. Leaves appeared on Gooseberry bushes on the 8th; buds on Service-berry bushes began to swell on the 9th; "pussies" on the willows at Mammoth on the 11th; Iris plants near Gardiner River and Montana state line were from three to five inches high on the 18th; and Helianthella appeared above ground on the 27th.

The remarkable ability of our vegetation to withstand frost was shown by Buttercups uninjured on the 5th (18°F.), 6th (15°F.), 7th (12°F.), 8th (12°F.), 9th (5°F.), 23rd (15°F.), and 24th (6°F.); by the Gooseberries on the 8th, 9th, 23rd, and 24th; by Phlox on the 23rd and 24th; and by the Iris (lily) plants on the 23rd and 24th. Vegetation of all kinds began growing

extremely early this season, at least up to date.

Birds:

Migratory birds arrived: Osprey and Flicker on the 9th; Sparrow Hawk on the 10th; Bluebill duck on the 13th; Baldpate on the 15th; Western Horned Owl on the 16th; and Pintail duck on the 23rd.

I found Bluebirds looking for nest sites on the 1st; crows began nesting on the 20th; the Osprey laid her first egg on Eagle Nest Rock on the 25th; completed her clutch of four eggs on the 29th, and began brooding the next day; a young killdeer seen near Mammoth on the 30th.

Interesting bird features: the earliest recorded arrival of the Osprey and Sparrow Hawk, and the extremely early nesting of the Osprey and the Killdeer; the number of Song Sparrows seen was greater than ever before in April, and the Bluebird population ranged well up towards the high of last year; and the tame crows are still about.

Mammals:

Whitetail deer began to change to the reddish summer coat on the 21st.

The buck Mule deer that shed his horns on Jan. 15th now has new horns eight inches long, whereas the buck that shed March 25th has horns two inches long; the average amongst all the other Mule deer is now five inches and beginning to show the first fork.

The elk within a radius of four miles of Mammoth now number about two hundred owing to their having come down in search of fresh, green grass. The last horns were shed on the 21st; the average new horns are now about ten inches long, and the first tines indicated.

The Mountain Sheep came down again to the rim of the Gardiner Canyon for the fresh green grass, and during the last week ten of these animals have been seen there frequently.

The antelope managed to break through the snow-filled passes on the 1st, appearing at the mouth of the Hellroaring Creek on the same day, and two days later at the Buffalo Ranch.

Half the Jack Rabbits have changed to the summer color, and the remainder still show a white tail and grayish under parts.

Insects:

Flying ants were seen swarming up from the ground on the 28th. A locust heard on the 28th.

Based on the above data, the season is now two days earlier than the average year.

Arrests and Violations of Law:

No arrests were made, and no violations of law reported, during the month. As in other parts of the country, the use of intoxicants in violation of the Federal Laws is becoming more and more apparent every day, but this is a matter that is very hard to regulate and it is extremely difficult to secure evidence, or securing evidence, to get a conviction, as in a majority of cases the law does not seem to be backed by public sentiment. Regardless of this fact, however, efforts will be made, as they have been in the past, to keep the park as nearly free from intoxicants as possible, but notwithstanding our efforts, it is bound to get in to some extent, and its effects are occasionally noted among our own employees.

State Laws:

Copy of Senate Bill No. 173, by Fish and Game Committee, State of Idaho, which was approved by Governor D.W. Davis on March 1st, was received. In effect this bill creates what is known as the "Fremont Game Preserve", which includes a territory adjacent to the park line on the southwest, and prohibits hunting, trapping, capturing, or pursuing game animals or game birds and fur bearing animals, including beaver, otter, marten, fisher, fox, mink, and wolverine within its limits; its violation punishable by a fine of not less than One Hundred Dollars nor more than Five Hundred Dollars, or imprisonment in the county jail for a period of not less than three months nor more than one year, or both such fine and imprisonment. Section 8 of this bill, however, provided that it shall not take effect or be in force unless the following conditions exist, namely:

(1) That a permit is granted either by Congress or by the Secretary of the Interior for the use of that part of the Fall River Meadows and Basin, within the Yellowstone National Park, which is desired for reservoir site, or

(2) The lands included in said proposed reservoir site have been eliminated from the Yellowstone National Park by Act of Congress, or otherwise, so that the lands included within the proposed reservoir site will be available for use for such reservoir purposes:

(3) That the Governor of the State of Idaho has made a proclamation in which he declares that either of the foregoing provisions and subdivisions, 1 and 2, of this Section, have been complied with, and when such declaration is made this law shall be in full force and effect, but not effective for any purpose until such proclamation and declarations shall have been made.

Forest Fires.

Forest fires are not in season and none occurred during the month.

Accidents and Casualties.

None were reported during the month.

Sickness.

No severe cases of indisposition were reported in the park during the month.

Medical Service.

Medical service was furnished by Doctor W. E. Crawback, under his special arrangement with park employees. He reports having made 27 calls among our employees during April.

Natural Phenomena.

Park Naturalist Skinner furnishes the following interesting report on the Natural Phenomena at Mammoth Hot Springs during April.

At Mammoth Hot Springs: Blue Spring (the spring that furnishes water to Jupiter Terrace) showed possibly a little more activity, at any rate, the coloring is still improving. The spring to the south is again increasing in activity and the coloring spreading and getting deeper in color. Probably the whole hillside of which Jupiter and Pulpit Terraces form the main part will show greater activity and more wonderful coloring during the coming summer than ever before. Marble Terrace is again increasing in color and activity. At Angel Terrace the color and activity continue good. The White Elephant is the same as at the last report. Orange Spring, Bath Lake, and the Devil's Kitchen all continue as per last report. Harrow Gauge Terrace is a trifle less active than last month. Minerva Terrace

shows a slight increase in activity and the color is better and spreading out over new ground. Mound Terrace continues normal. Palette Spring is almost dead. Cleopatra Terrace continues normal with very fine coloring. Hymen Terrace continues to grow less and the coloring giving way to the pure white of a dead terrace.

Special Visitors.

No moving picture operators, celebrities, or other casual visitors of importance were registered during the month of April.

Motion Pictures.

No motion picture operators visited the park, nor were any special permits issued for this purpose during April.

Miscellaneous.

Entertainments: Moving picture shows were held for the benefit of park employees in the Post Exchange auditorium on April 2nd, 16th, and 30th. Following the picture on April 30th, a dance was given, which was attended by many people from Gardiner and other adjoining villages. Special music and a lunch was furnished.

Church Services: Church services were held in the chapel on the evening of April 10th, by Rev. J.F. Pritchard, Episcopal minister from Emigrant, Montana.

X. RECEIPTS AND REMITTANCES:

Report on the regular blank forms of revenues due, collected, and transmitted, is enclosed. The total amount enclosed herewith, as shown by this report, is described as follows:

Postal Money Order, No. 46260, drawn by the Postmaster at Yellowstone Park, Wyoming, on the Postmaster at Washington, D.C., to your order, amount,\$1.57.

Acknowledgment of the receipt of this money is requested.

Cordially yours,

Horace M. Albright,
Superintendent.

The Director,
National Park Service,
Department of the Interior,
Washington, D.C.
Enclosures.

U. S. DEPARTMENT OF AGRICULTURE
WEATHER BUREAU
Yellowstone Park, Wyo.

WEATHER CONDITIONS--MAMMOTH HOT SPRINGS.

A P R I L, 1921.

Temperature:

Monthly mean, 34.6° , is 2.4° below normal. The mild weather at the colse of March continued for the first three days in April, and the highest temperature, 59° , recorded during the month occurred on the 3d. The week following this period was moderately cold with the lowest for the month, 5° , occurring on the 9th. The second decade was slightly above normal while the last ten days were considerably below normal.

Precipitation:

Total, 1.70 inches, is 0.32 inch above normal. It is interesting to note that each month since November, 1920, shows an excess in temperature and a deficiency in precipitation, while April presents a reverse condition, namely, a deficiency in temperature and an excess in precipitation.

Snowfall:

Total, 11.1 inches, is somewhat above normal. There were seven days with a measurable amount of snowfall, and the greatest depth on the ground was 5.0 inches on the 23d.

Wind

The wind movement was about normal with a very moderate maximum velocity of 36 miles on the 29th.

Sunshine:

Percentage of possible, 50, or about 20% less than normal.

E. H. Fletcher,
Observer.

May 3, 1921.

U. S. DEPARTMENT OF AGRICULTURE
WEATHER BUREAU
Yellowstone Park, Wyo.

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The wind movement was about normal with a very moderate maximum velocity of 36 miles on the 29th.

Sunshine:

Percentage of possible, 56, or about 20% less than normal.

E. H. Fletcher,
Observer.

May 3, 1921.

Report of Power Plant for April 1921

Total Generated.

12810

to Concessioners, 1131

Street Lighting

621

Government Building

1752
11058

Lines,

Peak Load, 4-25-9PM

44 W.

Increase over April

20

4090 KW

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

YELLOWSTONE NATIONAL PARK

YELLOWSTONE PARK, WYO.

THE SUPERINTENDENT

May 1, 1921.

REPORT ON NATURAL PHENOMENA.

To: Chester A. Lindsley, Acting Superintendent.

From: M.P. Skinner, Park Naturalist.

At Mammoth Hot Springs: Blue Spring (the spring that furnishes water to Jupiter Terrace) showed possibly a little more activity, at any rate the coloring is still improving. The spring to the south is again increasing in activity and the coloring spreading and getting deeper in color. Probably, the whole hillside of which Jupiter and Pulpit Terraces, the main part will show greater activity and more wonderful coloring during the coming summer than ever before. Marble Terrace is again increasing in color and activity. At Angel Terrace the color and activity continue good. The White Elephant is the same as last report. Orange Spring, Bath Lake, and the Devil's Kitchen all continue as per last report. Narrow Guage Terrace is a trifle less active than last month. Minerva Terrace shows a slight increase in activity and the color is better and spreading out over new ground. Mound Terrace continues normal. Palette Spring is almost dead. Cleopatra Terrace continues normal with very fine coloring. Hymen Terrace continues to grow less and the coloring giving way to the pure white of a dead terrace.

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

YELLOWSTONE NATIONAL PARK

YELLOWSTONE PARK, WYO.

OF THE SUPERINTENDENT

May 1, 1921.

REPORT ON SEASONAL CHANGES.

To: Chester A. Lindsley, Assistant Superintendent.

From: M.P. Skinner, Park Naturalist.

Botanical: Grass made good growth throughout the month. Flowers started to bloom: Buttercups on the 4th; Phlox at 5600 feet elevation on the 20th, at Mammoth on the 28th; Dandelion near Mammoth on the 25th; and Yellow Violets on the 29th. Leaves appeared on Gooseberry bushes on the 8th; buds on Service-berry bushes began to swell on the 9th; "pussies" on the Willows at Mammoth on the 11th; Iris plants near Gardiner River and Montana state line were from three to five inches high on the 18th; and Helianthella appeared above ground on the 27th.

The remarkable ability of our vegetation to withstand frost was shown by Buttercups uninjured on the 5th (18°F), 6th (15°F), 7th (12°F), 8th (13°F), 9th (5°F), 23rd (15°F), and 24th (6°F); by the Gooseberries on the 8th, 9th, 23rd, and 24th; by Phlox on the 23rd and 24th; and by the Iris (lily) plants on the 23rd and 24th. Vegetation of all kinds began growing extremely early this season, at least up to date.

Birds: Migratory birds arrived: Osprey and Flicker on the 9th; Sparrow Hawk on the 10th; Bluebill duck on the 13th; Baldpate on the 15th; Western Horned Owl on the 16th; and Pintail duck on the 23rd.

I found Bluebirds looking for nest sites on the 1st; crows began nesting on the 20th; the Osprey laid her first egg on Eagle Nest Rock on the 25th, completed her clutch of four eggs on the 29th, and began brooding the next day; a young killdeer seen near Mammoth on the 30th.

Interesting bird features: the earliest recorded arrival of the Osprey and Sparrow Hawk, and the extremely early nesting of the Osprey and

and the Killdeer; the number of Song Sparrows seen was greater than ever before in April and the Bluebird population ranged well up towards the high of last year; and the tame crows are still about.

Mammals: Whitetail deer began to change to the reddish summer coat on the 21st.

The buck Mule deer that shed his horns on Jan. 15th now has new horns eight inches long whereas the buck that shed ^{new} has horns two inches long; the average amongst all the other Mule deer is now five inches and beginning to show the first fork.

The Elk within a radius of four miles of Mammoth now number about two hundred owing to their having come down in search of fresh, green grass. The last horns were shed on the 21st; the average new horns are now about ten inches long and the first tines indicated.

The Mountain Sheep came down again to the rim of the Gardiner Canyon for the fresh green grass, and during the last week ten of these animals have been frequently seen there.

The Antelope managed to break through the snow-filled passes on the 1st, appearing at the mouth of the Hellroaring Creek on the same day and two days later at the Buffalo Ranch.

Half the Jack Rabbits have changed to the summer color, and the remainder still show a white tail and grayish under parts.

Insects: Flying ants seen swarming up from the ground on the 28th. A Locust heard on the 28th.

Based on the above data, the season is now two days earlier than the average year.

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

YELLOWSTONE NATIONAL PARK

YELLOWSTONE PARK, WYO.

THE SUPERINTENDENT

May 1, 1921.

REPORT ON WORK PERFORMED.

TO: Chester A. Lindsley, Acting Superintendent.

From: M.P. Skinner, Park Naturalist.

Park Naturalist Skinner continued the information service as appears more fully in his report on Information Service. The requirements of the new museum were studied and plans for cases prepared by him. Only six specimens were collected but a large share of his time was spent on field trips resulting in the collection of a large amount of valuable data and the location of specimens to be secured later. Notes were written up and two manuscripts were written; photograph illustrations for manuscripts were prepared. The special studies of forestry and plants were continued. A small amount of work was done indexing books and pamphlets in the library. Other studies pursued by him, resulted in his notes on Seasonal Changes and Natural Phenomena, as embodied in this report.

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

YELLOWSTONE NATIONAL PARK

YELLOWSTONE PARK, WYO.

THE SUPERINTENDENT

May 1, 1921.

REPORT ON INFORMATION SERVICE.

To: Chester A. Lindsley, Assistant Superintendent.

From: M.P. Skinner, Park Naturalist.

114 Yellowstone National Park publications and 81 publications relating to other National Parks were sent out free of charge. 10 "for sale" publications were sold. 65 short letters were sent out in reply to simple inquiries; 15 more letters requiring longer, more technical replies were answered after spending the necessary time in searching out the information desired. Finding that the number of applications for positions were becoming excessive, we had a form letter prepared and these mimeographed answers were sent to 153 applicants. In addition, 48 more letters applying for positions were answered, mostly by referring the applicants to the Hotel Company, the Camps Company, or the Transportation Company, as seemed most suitable.

DEPARTMENT OF THE INTERIOR

NATIONAL PARK SERVICE

YELLOWSTONE NATIONAL PARK

YELLOWSTONE PARK, WYO.

THE SUPERINTENDENT

May 5, 1921.

Sup't. Horace M. Albright,
Yellowstone National Park,
Yellowstone Park, Wyo.

Dear Mr. Albright:

The following is my report on the conditions and operations of the Ranger Service in the Yellowstone National Park during the month of April, 1921.

GENERAL CONDITIONS:

Melting snow, heavy rains and decaying snow made extensive patrolling almost an impossibility during the month. Trappers had taken up their lines before the first of the month and have left the trapping district around the borders of the park. No indications of hunter were reported in any district except the northern, where three parties made vain attempts to hunt bear.

Under these conditions the rangers were ordered to police the station grounds and to begin their preparations for the tourist season.

IMPROVEMENTS:

Hellroaring.

The new winter station and barn on Hellroaring Creek has been completed at a cost of \$168.00, plus the time of five rangers for twenty-four days. The cabin is far superior to any other structure of its design in the district, and in the construction alone, a saving of more than \$500 is shown.

This building is 32' X 22' and is divided into two sections, kitchen and dining room; and lounging and bedroom. It is comfortably furnished and is so situated and well built that it will be plenty warm during the winter months.

The barn is one of the best additions to the district as the men have been compelled in the past to tie their horses to trees without shelter. This left them in very poor condition. The building, though of rough design, is sufficient for the little use we have for it. Four horses can be stalled in it with ease, and as many as eight in an emergency.

Several days were spent repairing the old cabin to be used as a storage house and in cleaning up debris around the new buildings and along the trails. A large grain box was built in the old cabin and lined with tin to keep the mice out of the grain.

Gallatin.

Ranger Sam T. Woodring requested an allotment of \$100 to build a new barn at the Gallatin Station, by salvaging the material in the old barn at the former station along the line. The boards and timbers in this barn were in excellent condition. With the assistance of a helper and a team he succeeded in wrecking and hauling the old building to the site of the new station.

The barn was completed before the end of the month to accommodate eight head of horses, with a large hay loft, spacious enough to hold ten tons of hay. The expenditures in its construction was less than the amount granted for the work.

IMPROVEMENTS:

Buffalo Corral.

A band of elk wintering around the Buffalo Corral at Mammoth broke down the fence in three sections. Rangers Lawson and Burkett set about fifty new spruce posts and re-stretched all of the wire around the pasture, leaving it in first class condition for the Buffalo Show Herd.

In addition to the buffalo in the corral, a band of thirty-two elk, and "Bill", the elk, will be in the pasture as an added attraction. These animals were not intentionally trapped and they have been wintering and feeding in this vicinity for the past three years.

Slough Creek.

Winter Keeper Hutchings and Ranger C. Anderson completed a much needed storehouse at the Slough Creek Hay Ranch. The building is a large, peeled log structure and was built in spare time by the two men at practically no demand on the park appropriation.

Timothy seed was sowed by hand over fresh snow on the meadows. Though the hay crop cut at Slough Creek in the past has been of good quality, its lightness meant a loss of about 10 per cent. Favorable weather conditions should make this planting a success and will increase the acreage of the cut about 25 per cent.

In addition to the erection of the storehouse and the planting of the Red Top, preparations were made to construct additional buildings in the upper end of the meadows.

Buffalo Ranch.

With the assistance of an irrigator, Buffalo Keeper Lacombe cleaned out irrigation ditches and repaired and built in head-gates and ditch boxes on the hay field. With this improvement he expects to

Wood to Auto Camps.

will haul condemned lumber and dead timber to the Mammoth Auto Camps, along the Gardiner river, for use of the tourists during the season. Though the convenience brought many compliments from the tourists last season, it is our intention to make the auto camps a more decided success this year.

Snow Work.

Reports from rangers in all sections of the park indicates an average fall of two feet below the record in the March report. The ranger service is expecting to direct the clearing of the roads when the occasion demands. Men will inspect telephone lines and the roads at regular intervals, to have everything in condition at the opening of the season.

Many trees and large boulders have fallen in and across the roads and large trees across the telephone lines. Rangers in the interior of the park report the hotel line almost beyond repair, in fact, worse than it has ever been known to be. Many polls have fallen down, others have broken with the weight of the snow on the wires, and wires have snapped at splices. At no time during the winter has the government line been out of order.

Crevice Cabin.

I am making arrangements to build a new station on the top of Crevice mountain for winter work, at a cost of approximately \$1200. This structure will be of peeled logs 8' high, X 16' wide, X 30' long, with a kitchen separate, but adjoining, 16' X 16'. Water will have to be piped about a thousand feet from a spring on the hill above the station.

The barn will be erected from timbers salvaged from the old station. This will not be entirely rebuilt, but some portection will have to be arranged for forage for six head of horses.

STREAMS AND RIVERS:

All waters in the northern district of the park began to raise during the last on the month, the greatest rise reported being from the Buffalo Farm on the 29th, when the Lamar river rose eighteen inches. Slough, Hellroaring, Cache, Rose, Soda Butte, and Crevice creeks, rose from six to twenty inches during the last few days of the month.

A rise of three quarters of an inch in Yellowstone Lake outlet was reported April 26th, with a raise of eighteen inches being recorded at the Canyon gauging station along the Yellowstone River. This was caused by the ice breaking up in Trout, Antelope, Alum, Otter, Amethyst, and Sour Creeks. According to Act'g. Ass't. Chief Ranger Scoyen, the Yellowstone River, on the 30th, was four inches above low water mark.

PERSONNEL:

Changes.

Act'g. Ass't. Chief Ranger Joseph O. Douglas, in charge of the Eastern and Southern district of the park, was promoted to Ass't. Chief Park Ranger at \$1320 per annum, plus increase compensation.

Mr. Warren Hutchins, winter keeper at the Slough Creek Horse Ranch, notified me on April 15th that he would have to resign his position May 15th. The reason I believe, is based on a family difference.

Mr. Ira D. Fleming of Big Timber, Montana, has been recommended to succeed Hutchings at Slough Creek. I understand Mr. Fleming has had considerable experience in work of this kind, having held a foreman's position on several large Montana cattle ranches.

Mr. Jack McDonald, acting as Ass't. Buffalo-keeper under Lacombe, has shown qualifications which would warrant his appointment to the position. This request has been sent to the Director under your orders. His salary to be \$1200 per annum plus increase compensation.

PERSONNEL:

Changes Cont'.

Mr. Edward Burkett, of Gardiner, Montana, employed during the month of April as a laborer, but performing the duties of and acting as a park ranger on trial has made good. His duties have varied, and he has performed them tactfully and efficiently. He has shown in his trial for a permanent position that we have been justified in recommending him to you.

The following named men have been ordered to report to the Chief Ranger's Office June 14th for ranger service during the 1921 tourist season:

Emmet S. Matthew,	Hollis N. Matthew,
Sam Hurless,	William C. Troutman,
Leon D. Mink,	Ray D. Teesdale,
Frank J. Parsch,	Elmous M. Mead,
Russell Sprinkel,	Wendell S. Keate,
Eugene V. Robertson,	Frank M. Knight,
Vern S. Downs,	Edgar E. Randolph,
Gordon Cottier,	F. L. Carter,
Edw. B. Cogswell,	Carrol P. Donohoe,
Fred C. Finch,	Cyril C. Moore,
Paul R. Wylie,	Marguerite Lindsley,
Frank H. Roe,	Philip R. Hough,
Alfred H. Clarke,	E.P. Buckenmyer,
Robert Wilkenson,	Robert J. Potter,
Frank H. Schramm,	Milton E. Lichtenwallner,
James S. Baker,	Roger D. Baker,
William Mondell, *	Jos. Byrns, Jr. *
Robert Armstrong, Jr. *	Hugh Cramer. *

Final correspondence is awaited on the following:

John T. Needham,	Warren H. Loyster,
Clarence E. King,	H. E. Pamel,
Hugh D. McFadden,	Florian J. Ubel.

*Under ranger status, but not carried as such, but will be employed to perform the duties of a temporary ranger.

PERSONNEL:

Leaves.

Annual leave of absence was granted to the following rangers during the month of April:

Roy T. Frazier,	19 days.
E. T. Scoyen,	15½ days.
Wendell M. Bishop,	13 days.
Roby R. Wisdom,	16 days.
Harry Trischman,	3 days.
Hans Larsen,	3 days.
James Dupuis,	2½ days.
Al T. Bicknell,	1½ days.
Joe O. Douglas,	½ day.
Earl S. Bowman,	1 day.

Appointments:

The following named rangers, formerly designated as "First-Class Park Rangers", were re-appointed on April 1, as Park Rangers, according to new regulations which dispenses with the First-Class Park Ranger designations:

Court B. Dewing,
 Peter Lawson,
 Elad G. Pound,
 Roby R. Wisdom,
 Raymond G. Little,
 Henry Anderson.

Promotions.

Park Rangers Clifford Anderson and Luther Custer, held thru the winter under temporary appointments at \$80 per month plus increase compensation, were promoted to Park Rangers, April 1st and April 8th, respectively; at \$1200 per annum plus increase compensation.

Reliefs.

Park Ranger E.S. Bowman was ordered to report to the Sylvan Pass station on April 1st, to relieve Park Ranger Wisdom, while on leave 16 days.

GAME CONDITIONS:

Deaths in our big game herds from is well under the 100 mark between the months of October and May. Fifty-four elk, forty-six deer, six antelope, one bear, and one mountain sheep, comprises the total number, either having been killed by hunters outside of the park, or predatory animals, or by natural causes, according to my records, based on reports from rangers in all sections of the park.

We are expecting an exceeding large crop of calves from the elk, buffalo and antelope, and from the condition and indication of the does, many fawns are looked for.

Buffalo--Tame Herd.

Nine buffalo calves were born during the last of the month and according to Lacombe's report, we will have between 85 and 100 more calves this year than those born last season. He expects to be able to save about 120 calves, figuring a loss of 25% of the offspring from the heifers.

Buffalo--Wild Herd.

Fifty-four of the wild buffalo herd has been feeding on the mountains above Cache creek. Reports from Ranger George Winn are to the effect that all of the cows show signs of being with calf. He has been instructed to make an attempt to count the increase at the first opportunity.

Bear.

Bear are out in all sections of the park. One of these animals destroyed all of the rations and broke many dishes, etc., at Madison Junction on April 10th. They are in good condition, but have had considerable trouble rustling their forage.

Antelope.

GAME CONDITIONS:

Antelope—Cont'.

Ranger Al McLaughlin, Gardiner Station, reported the death of four antelope on the north line during the month, death, he believed from natural causes. With the exception of a few young animals, the entire herd left the flats during the month. They have been seen on the Black Tail, Hellroaring Creek, and at the Buffalo Ranch.

Deer.

Three dead deer were reported from the Gardiner station. They appeared to be old animals, and bore no indications of having been killed by either predatory animals or by hunters. They no longer feed in large bands, having scattered with the appearance of green grass.

Elk.

The elk herds have drifted out of the low-lands in the park, having started their runs across Specimen Ridge and Mount Washburn. Only a few thousand remained in the Hellroaring and Slough Creek districts at the end of the month. Two dead elk were found during the month, these being old barren cows. Predatory animals were unable to drag any of them down.

Mountain Sheep.

Six large rams were seen in the Gardiner Canyon on the 30th. They were in excellent condition. A herd of twenty-six was seen on Big Specimen, and a band of eighteen at Tower Falls.

Moose.

No reports of moose were received for the month. Apparently they are high in the mountains again.

GAME CONDITIONS:

Carniverous Animals.

Rangers Henry Anderson and Court B. Dewing, working in the northern district of the park, for the purpose of ridding the northern district of the alleged large packs of wolves and coyotes, were unable to succeed with any effective work. Though a few predatory animals have worked in the district all winter, light snow falls hindered tracking.

Anderson cleaned out one wolf den with eleven pups, but was unable to get the female. He also killed the largest wolf ever killed in the park. The cleaning of the den and the killing of the wolf is the feature of his work for the month.

Our annual sale of coyote furs was held April 25th, when Mr. C. A. Hamilton closed a deal with me for sixty-one hides at \$5.00 each. This is \$1 above the current market price for 1st grade coyote hides.

The following statistics is the record of the fur transaction this season:

Ranger.	Hides,	Share.
James Dupuis,	10	\$12.50
C. Anderson,	1	\$ 1.25
Al McLaughlin,	3	\$ 3.75
H. Anderson,	<u>49</u>	<u>\$61.25</u>
	63	\$78.75

Proceeds.

C.A. Hamilton,	\$305.00
Mrs. H. M. Albright,	\$ 5.00
Miss Carrie Haumesser,	\$ 5.00
	<u>\$315.00</u>

To United States Treasury,\$236.25

STATION SNOW REPORT:

Mammoth,	--,	Inches.
Norris,	12,	"
Riverside,	--,	"
Upper Basin,	--,	"
Gallatin,	--,	"
Snake River,	34,	"
Taumb,	28,	"
Lake,	18,	"
East Entrance,	0-	"
Canyon,	22,	"
Tower Falls,	--,	"
Buffalo Ranch,	66,	"
Soda Butte,	--,	"
Hellroaring,	00,	Inches.

(Where the above figures show no snow opposite a station, it does not necessarily mean that there is no snow in the district. In these instances, the snow is in large drifts and is out of the area measured by the men during the winter.)

Respectfully yours,

James McBride,
Chief Ranger.